

**COMMONWEALTH OF VIRGINIA**  
**Department of Environmental Quality**  
**Southwest Regional Office**

**STATEMENT OF LEGAL AND FACTUAL BASIS**

General Dynamics-Armament and Technical Products  
325 Brunswick Lane - Marion, Smyth County, Virginia  
Permit No. SWRO10050

Title V of the 1990 Clean Air Act Amendments required each state to develop a permit program to ensure that certain facilities have federal Air Pollution Operating Permits, called Title V Operating Permits. As required by 40 CFR Part 70 and 9 VAC 5 Chapter 80, General Dynamics – Armament and Technical Products has applied for a significant modification to the Title V Operating Permit for its Marion – Plant 1 facility. The Department has reviewed the application and has prepared a Title V Operating Permit.

Engineer/Permit Contact:\_\_\_\_\_

Date:\_\_\_\_\_

Air Permit Manager:\_\_\_\_\_

Date:\_\_\_\_\_

Deputy Regional Director:\_\_\_\_\_ Date:\_\_\_\_\_

## **FACILITY INFORMATION**

### Permittee

General Dynamics-Armament and Technical Products  
150 Johnston Road  
Marion, VA 24354

### Facility

General Dynamics-Armament and Technical Products  
325 Brunswick Lane  
Marion, VA 24354

County-Plant ID No: 51-173-00001

## **SOURCE DESCRIPTION**

NAICS Code: 332311 – Fabricated metal buildings  
336412 – Aircraft engines and engine parts  
336413 – Aircraft parts and auxiliary equipment NEC  
336419 – Guided missile and space vehicle parts  
**336992** – Military Armored Vehicle, Tank, and Tank Component Manufacturing

General Dynamics-Armament and Technical Products is an aerospace and metal shelter product manufacturing operation that includes the fabrication and assembly of a variety of military and commercial items. The company also fabricates armor plate for military vehicles. The operations include the application of many coatings, resins, adhesives, fillers, or cleaners by several different methods, such as spray coating, brushing, extrusion, chemical conversion, troweling, rolling, etc. Most of the operations are labor intensive, and involve many fabrication/assembly steps.

The facility is a Title V major source of hazardous air pollutants (HAPs). This source is located in an attainment area for all pollutants. The facility was previously permitted under a Minor NSR permit issued on March 15, 2005 (as amended April 18, 2005 and May 4, 2005).

## **COMPLIANCE STATUS**

A full compliance evaluation of this facility, including a site visit, has been conducted. In addition, all reports and other data required by permit conditions or regulations, which are submitted to DEQ, are evaluated for compliance. Based on these compliance evaluations, the facility has not been found to be in violation of any state or federal applicable requirements at this time.

### EMISSION UNIT AND CONTROL DEVICE IDENTIFICATION

The emissions units at this facility consist of the following :

[illegible]

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
20, 46, 57, 58, 61, 66, 67, FWG1-11, CG1-9, 80	same	Trimming panels, sanding and grinding of ceramic or quartz radomes	Panel trim – 600 lb product/hr sanding – 4,000 lb product/hr grinding – 200 lb product/hr	Various baghouses	same	PM/PM10	03/15/05 as amended 04/18/05 and 05/04/05
<b>Metal Cleaning</b>							
1-4	same	Aluminum wash, rinse, acid wash tanks	6,000 lb product/hr	Venturi scrubbers for acid tanks	same	PM/PM10	03/15/05 as amended 04/18/05 and 05/04/05
<b>Flame/Arc Spray Booth</b>							
27	same	Flame spraying; Arc spraying	600 lb product/hr; 4000 lb/hr	Filters	same	PM/PM10	03/15/05 as amended 04/18/05 and 05/04/05
<b>Armor Plate Line</b>							
108	same	Grinding/Sealer Booth	4,000 lb product/hr each	Filters	same	PM/PM10	03/15/05 as amended 04/18/05 and 05/04/05
109		Sealer Booth		None		----	

\*The Size/Rated capacity is provided for informational purposes only, and is not an applicable requirement.

## EMISSIONS INVENTORY

The company reported the following emissions for 2003:

### 2003 Actual Emissions

	2003 Criteria Pollutant Emission in Tons/Year				
	VOC	CO	SO <sub>2</sub>	PM <sub>10</sub>	NO <sub>x</sub>
Total	52.8	1.3	1.0	0.5	5.1

### 2003 Facility Hazardous Air Pollutant Emissions

Pollutant	Hazardous Air Pollutant Emission in Tons/Yr
Methyl Ethyl Ketone	18.8
Non-PM, non-VOC HAPs	6.4
Total HAPs	25.2

## EMISSION UNIT APPLICABLE REQUIREMENTS - #18 & #19 Cleaver Brooks boilers

### Limitations

The following limitations are requirements from Conditions 10, 11, 12, 13, 14, 22, 26, 29, 32, and 34 of the Minor NSR Permit issued on March 15, 2005 as amended April 18, 2005 and May 4, 2005:

Condition 10 requires that the facility provide for testing ports as necessary.

Condition 11 limits the approved fuels to natural gas and distillate oil.

Condition 12 specifies that the sulfur content of the oil cannot exceed 0.5% by weight per shipment.

Condition 13 limits natural gas consumption to 90 million cubic feet per year.

Condition 14 limits distillate oil consumption to 105,000 gallons per year.

Condition 22 limits emissions from the boilers to

Sulfur Dioxide	32.2 lbs/hr	3.8 tons/yr
Nitrogen Oxides (NO <sub>x</sub> )	9.0 lbs/hr	7.4 tons/yr
Carbon Monoxide	2.2 lbs/hr	1.8 tons/yr

Condition 26 limits visible emissions from the boilers to 20% opacity, except for one 6-minute period not to exceed 30% opacity.

Condition 29 requires recordkeeping of monthly and annual fuel consumption.

Condition 32 requires that notification be provided for malfunctions of processing or control equipment that may cause excess emissions for more than one hour.

Condition 34 requires maintenance schedules, spare parts inventory, written operating procedures, and operator training records for control and process equipment affecting emissions.

The following Virginia Administrative Codes that have specific emission requirements have been determined to be applicable:

9 VAC 5-50-10 – 50 contain general requirements for proper operation, maintenance, recordkeeping, notification, and compliance.

9 VAC 5-50-80 Standard for Visible Emissions

The units are subject to an opacity limit of 20%, except for one six-minute period in any one hour not to exceed 30%.

The units are subject to emission standards outlined in 9 VAC 5-40, Article 8 in the absence of any standards from Chapter 50 of State Regulations.

9 VAC 5-40-900, Standard for Particulate Matter (PM)

Since one boiler (#18) was installed prior to 1979, by definition, it is considered a fuel burning equipment installation. The other boiler (#19) was installed after 1979, and will be examined as a unit. In the absence of a permit limitation on particulate matter emissions from the units, a standard must be determined from this section. According to 9 VAC 5-40-900 A.1.b, the installation may not emit more particulate matter than can be calculated by the formula:

$$E = 1.0906 H^{-0.2594}$$

where E is particulate emissions in lb/MMBtu and H is the heat rating of the units. The resulting particulate matter emission standards are,

$$\begin{aligned} E_{18} &= 1.0906(50.2)^{-0.2594} \text{ lb/MMBtu} = 0.39 \text{ lb/MMBtu} \\ E_{19} &= 1.0906(12.5)^{-0.2594} \text{ lb/MMBtu} = 0.57 \text{ lb/MMBtu} \end{aligned}$$

9 VAC 5-40-930, Standard for Sulfur Dioxide

Sulfur dioxide emissions are limited according to the formula

$$S = 2.64 K \quad \text{where, } S \text{ is lb/hr of SO}_2, \text{ and} \\ K \text{ is the heat capacity of the unit (MMBtu/hr).}$$

$$S_{18} = (2.64)(50.2) = 132.5 \text{ lb/hr SO}_2$$

$$S_{19} = (2.64)(12.5) = 33.0 \text{ lb/hr SO}_2$$

### Monitoring

The hourly emission limits from distillate oil and natural gas combustion were established based on the maximum rated capacity of the units, insuring that the likelihood of exceedance is very small as long as the unit is maintained and operated properly while processing the approved fuels. Annual emission limits were established based on the annual fuel throughput limits. Compliance with these emission limits is expected as long as the fuel throughput limits are not exceeded.

The emission factors used to develop the permitted emission limits are shown below. These factors were typical at the time the permit was written, and represent average emissions from such units. Proper operation and maintenance will insure that the emission limits are met.

#### Distillate Oil Combustion

Emission factors from SCC 1-02-005-02  
 PM 2 lb/1000 gal  
 SO<sub>2</sub> 143.6 S lb/1000 gal (S= wt% sulfur)  
 CO 5 lb/1000 gal  
 NO<sub>x</sub> 20 lb/1000 gal

#### Natural Gas Combustion

Emission factors from SCC 1-02-006-02  
 PM 3 lb/10<sup>6</sup> ft<sup>3</sup>  
 SO<sub>2</sub> 0.6 lb/10<sup>6</sup> ft<sup>3</sup>  
 CO 35 lb/10<sup>6</sup> ft<sup>3</sup>  
 NO<sub>x</sub> 140 lb/10<sup>6</sup> ft<sup>3</sup>

Compliance with the particulate matter standard may be demonstrated using the above emission factors and the maximum heat content of the fuels as follows:

$$(1 \text{ gal}/140,000 \text{ Btu})(2 \text{ lb}/1000 \text{ gal})(10^6 \text{ Btu/MMBtu}) = 0.014 \text{ lb/MMBtu}$$

$$(1 \text{ ft}^3/1000 \text{ Btu})(3 \text{ lb}/10^6 \text{ ft}^3)(10^6 \text{ Btu/MMBtu}) = 0.003 \text{ lb/MMBtu}$$

Based on these factors, whether processing natural gas or distillate oil, compliance with the particulate matter standards is expected. No further monitoring or compliance determinations are required.

The NSR permit limits were established for the boilers based on the maximum capacity of each unit. The SO<sub>2</sub> emission limit was established using the permit limit of 0.5 wt% sulfur content of the oil. As long as this limit is complied with via fuel analysis results and recordkeeping, the emission limit will be met. Therefore, these emission limits will not be exceeded as long as the units are maintained and operated at or below maximum capacity.

Since the units operate by combustion of pipeline quality natural gas and distillate oil, no additional monitoring is required to show compliance with the opacity limit of 20%.

## **Recordkeeping**

The Title V permit includes requirements for maintaining records of all monitoring and testing required by the permit. These records include monthly and annual fuel consumption, fuel analyses of distillate oil shipments, hours of operation, written operating procedures, operator training, and maintenance schedules.

## **Testing**

The Title V permit does not require source tests for these units. A table of test methods has been included in the permit if testing is performed. The Department and EPA have authority to require testing not included in this permit if necessary to determine compliance with an emission limit or standard.

## **Reporting**

The company is required to provide notification for malfunctions of processing or control equipment that may cause excess emissions for more than one hour. An annual compliance certification is required of all Title V permit holders.

## **Streamlined Requirements**

The requirements of 9 VAC 5-40-930, Standard for Sulfur Dioxide, are less stringent than the emission limits included in the NSR permit. Therefore, streamlining is appropriate. The Title V permit will contain the NSR permit limits related to the use of approved low sulfur fuels. 9 VAC 5-40-930 will be cited in the Title V permit as indication that the associated standard was streamlined.

## **EMISSION UNIT APPLICABLE REQUIREMENTS – #5 Heat Cleaning Oven**

### **Limitations**

The following are requirements from Conditions 5, 15, 24, 29, 32, and 34 of the minor NSR permit issued on March 15, 2005 as amended April 18, 2005 and May 4, 2005:

Condition 5 requires that particulate emissions be controlled by an afterburner or equivalent.

Condition 15 requires that the oven process no more than 116.4 pounds per hour and 16.4 tons per year of metal parts.

Condition 24 limits particulate matter and PM10 emissions to 0.10 gr/dscf @12% CO<sub>2</sub>.

Condition 29 requires that records be kept for metal parts throughput.

Condition 32 requires that notification be provided for malfunctions of processing or control



equipment that may cause excess emissions for more than one hour.

Condition 34 requires maintenance schedules, spare parts inventory, written operating procedures, and operator training records for control and process equipment affecting emissions.

The following Virginia Administrative Codes that have specific emission requirements have been determined to be applicable:

**9 VAC 5-50-80 and 290 New Source Standard for Visible Emissions**

The unit is subject to an opacity limit of 20%, except for one six-minute period in any one hour not to exceed 30%.

9 VAC 5-50-10 – 50 contain general requirements for proper operation, maintenance, recordkeeping, notification, and compliance.

**9 VAC 5-40-750 Standard for Particulate Matter**

In the absence of specific requirements in Chapter 50, the requirements of this section apply to incinerators. The unit must not emit flue gas that contains more than 0.14 gr/dscf of particulate @ 12% CO<sub>2</sub>.

**Monitoring**

The monitoring requirements in Condition 29 of the NSR permit have been modified to meet Part 70 requirements.

The NSR permit specifies that the unit should be equipped with an afterburner for particulate matter control. The oven is fired with natural gas and is used to combust small amounts of residual coating from metal parts. Natural gas combustion produces negligible particulate matter emissions. Combustion of coating material should not generate significant quantities of particulate matter. The particulate matter that is generated should be adequately controlled by an afterburner operated at the manufacturer's recommended parameters. An oven with a properly operating afterburner should be capable of meeting the 0.10 gr/dscf requirement. The permit requires that the company measure the afterburner temperature and verify that it is operating in the range recommended by the manufacturer (minimum temperature of 1400 °F). The company is required to record this temperature once per batch.

The Title V permit contains a requirement to perform weekly visible emission evaluations (VEEs) on the oven stack. If visible emissions are present, a six-minute visible emission evaluation (VEE) must be performed according to 40 CFR 60, Appendix A, Method 9. If during the six minute period, any violations of the 20% opacity standard are noted, a one-hour VEE is required to demonstrate compliance with the standard. The one-hour VEE is not required if the source of excess visible emissions is corrected and returned to no visible emissions in a timely manner. This will satisfy the periodic monitoring requirement for the visible emission limitation included in the permit.

## **Recordkeeping**

The Title V permit includes requirements for maintaining records of all monitoring and testing required by the permit. These records include monthly and annual throughput of metal parts, hours of operation, visible emission evaluation results, and afterburner temperature observations.

## **Testing**

The Title V permit does not require source tests for this unit. A table of test methods has been included in the permit if testing is performed. The Department and EPA have authority to require testing not included in this permit if necessary to determine compliance with an emission limit or standard.

## **Reporting**

The company is required to provide notification for malfunctions of processing or control equipment that may cause excess emissions for more than one hour. An annual compliance certification is required of all Title V permit holders.

## **Streamlined Requirements**

The requirements of 9 VAC 5-40-750 are less stringent than the present NSR permit requirement, therefore, the Title V permit will only reflect the particulate matter emission limit of 0.10 gr/dscf @ 12% CO<sub>2</sub>. 9 VAC 5-40-750 will be cited in the Title V permit as indication that the associated standard was streamlined.

## **EMISSION UNIT APPLICABLE REQUIREMENTS - #40, #41, #49, #81, Resin Impregnation and Prepreg Operations**

### **Limitations**

The following are requirements from Conditions 21, 29, 32, and 34 of the minor NSR permit issued on March 15, 2005 as amended April 18, 2005 and May 4, 2005:

Condition 21 limits emissions from this operation to:

VOC	25.4 lb/hr	6.0 tons/yr
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Condition 29 requires the company to maintain records of material consumption, material MSDS information, and hourly and annual emission rates of the above pollutant.

Condition 32 requires that notification be provided for malfunctions of processing or control equipment that may cause excess emissions for more than one hour.

Condition 34 requires maintenance schedules, spare parts inventory, written operating procedures, and operator training records for control and process equipment affecting

emissions.

The following Virginia Administrative Codes that have specific emission requirements have been determined to be applicable:

9 VAC 5-50-10 – 50 contain general requirements for proper operation, maintenance, recordkeeping, notification, and compliance.

### **Monitoring**

Since no particulate matter emissions result from this process, an opacity limit does not apply, and no visual emissions evaluations are necessary to show compliance. Compliance with VOC emission limits will be determined by calculations from consumption and VOC content of resin materials, as required by Condition 29 of the NSR permit. No further monitoring practices are required.

### **Recordkeeping**

The Title V permit includes requirements for maintaining records of all monitoring and testing required by the permit. These records include material consumption, hours of operation, material MSDS information, and hourly, monthly, and annual emission rates.

### **Testing**

The Title V permit does not require source tests. A table of test methods has been included in the permit if testing is performed. The Department and EPA have authority to require testing not included in this permit if necessary to determine compliance with an emission limit or standard.

### **Reporting**

The company is required to provide notification for malfunctions of processing or control equipment that may cause excess emissions for more than one hour. An annual compliance certification is required of all Title V permit holders.

### **Streamlined Requirements**

There are no streamlining proposals for this operation.

## **EMISSION UNIT APPLICABLE REQUIREMENTS - #1-4 Metal Cleaning**

### **Limitations**

The following are requirements from Conditions 7, 29, 32, and 34 of the minor NSR permit issued on March 15, 2005 as amended April 18, 2005 and May 4, 2005:

Condition 7 requires that acid fume emissions be controlled by a venturi scrubber.

Condition 29 requires that records be kept to show compliance.

Condition 32 requires that notification be provided for malfunctions of processing or control equipment that may cause excess emissions for more than one hour.

Condition 34 requires maintenance schedules, spare parts inventory, written operating procedures, and operator training records for control and process equipment affecting emissions.

The following Virginia Administrative Codes that have specific emission requirements have been determined to be applicable:

9 VAC 5-50-10 – 50 contain general requirements for proper operation, maintenance, recordkeeping, notification, and compliance.

### **Monitoring**

The monitoring and recordkeeping requirements in Condition 29 of the NSR permit have been modified to meet Part 70 requirements.

Since no particulate matter emissions result from this process, an opacity limit does not apply, and no visual emissions evaluations are necessary to show compliance.

In order to determine that the venturi scrubber is operating properly, the company will conduct visual observations via a monitoring port to insure that water is flowing through the device. These observations will be made once per shift.

### **Recordkeeping**

The Title V permit includes requirements for maintaining records of all monitoring and testing required by the permit. These records include hours of operation, material safety data sheets for each material used, monthly and annual material consumption, and results of visual scrubber observations.

### **Testing**

The Title V permit does not require source tests. A table of test methods has been included in the permit if testing is performed. The Department and EPA have authority to require testing not included in this permit if necessary to determine compliance with an emission limit or standard.

### **Reporting**

The company is required to provide notification for malfunctions of processing or control equipment that may cause excess emissions for more than one hour. An annual compliance certification is required of all Title V permit holders.

### **Streamlined Requirements**

There are no streamlining proposals for this operation.

### **EMISSION UNIT APPLICABLE REQUIREMENTS - #20, 46, 57, 58, 66, 67, FWG1-11, CG1-9, 80, 108 – Grinding/Sanding/Routering**

#### **Limitations**

The following are requirements from Conditions 6, 23, 25, 29, 32, and 34 of the minor NSR permit issued on March 15, 2005 as amended April 18, 2005 and May 4, 2005:

Condition 6 requires that particulate emissions be controlled by dry filters or baghouses.

Condition 23 limits emissions to:

PM/PM10	28.2 lb/hr	18.4 tons/yr
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Condition 25 limits visible emissions to 5% opacity.

Condition 29 requires that records of material throughput to this operation be kept to show compliance.

Condition 32 requires that notification be provided for malfunctions of processing or control equipment that may cause excess emissions for more than one hour.

Condition 34 requires maintenance schedules, spare parts inventory, written operating procedures, and operator training records for control and process equipment affecting emissions.

The following Virginia Administrative Codes that have specific emission requirements have been determined to be applicable:

9 VAC 5-50-10 – 50 contain general requirements for proper operation, maintenance, recordkeeping, notification, and compliance.

9 VAC 5-50-80 and 290, New Source Standard for Visible Emissions.  
(see Streamlining discussion)

### **Monitoring**

The monitoring requirements in Condition 29 of the NSR permit have been modified to meet Part 70 requirements.

The Title V permit contains a requirement to perform weekly visible emission evaluations (VEEs) on the fabric filter stacks. If visible emissions are present, a six-minute visible emission evaluation (VEE) must be performed according to 40 CFR 60, Appendix A, Method 9. If during the six minute period, any violations of the 5% opacity standard are noted, a one-hour VEE is required to demonstrate compliance with the standard. The one-hour VEE is not required if the source of excess visible emissions is corrected and returned to no visible emissions in a timely manner. This will satisfy the periodic monitoring requirement for the visible emission limitation included in the permit.

Compliance with the particulate matter emissions limits may be demonstrated by properly maintaining the controls for the emission units, and by conducting the above weekly visible emission evaluations.

The addition of a grinding booth (#108) to the facility (in the armor plate operation) does not require a compliance assurance monitoring (CAM) plan. The grinding booth is regarded as the pollutant specific emissions unit of concern. The pre-controlled particulate matter emissions from the grinding booth are not expected to exceed a major source threshold. Therefore, CAM does not apply to this unit.

### **Recordkeeping**

The Title V permit includes requirements for maintaining records of all monitoring and testing required by the permit. These records include hourly, monthly, and annual material balance for the routing, grinding, and sanding operations, and the results of the visible emission evaluations.

### **Testing**

The Title V permit does not require source tests. A table of test methods has been included in the permit if testing is performed. The Department and EPA have authority to require testing not included in this permit if necessary to determine compliance with an emission limit or standard.

### **Reporting**

The company is required to provide notification for malfunctions of processing or control equipment that may cause excess emissions for more than one hour. An annual compliance certification is required of all Title V permit holders.

### **Streamlined Requirements**

9 VAC 5-50-80 and 9 VAC 5-50-290 contain opacity requirements of 20% for new sources. Since Condition 25 of the NSR permit requires 5% opacity, it is more stringent and streamlining is appropriate. The Title V permit will require 5% opacity limits for the grinding/sanding/routing equipment. 9 VAC 5-50-80 and 9 VAC 5-50-290 will be cited in the Title V permit as indication that the associated standard was streamlined.

## **EMISSION UNIT APPLICABLE REQUIREMENTS - #27 – Flame/Metal Arc Spray Booth**

### **Limitations**

The following are requirements from Conditions 6, 9, 16, 17, 25, 29, 32, and 34 of the minor NSR permit issued on March 15, 2005 as amended April 18, 2005 and May 4, 2005:

Condition 6 requires that particulate emissions be controlled by dry filters or baghouses.

Condition 9 requires that the booth be equipped with differential pressure monitoring devices.

Condition 16 limits metal throughput to the flame spray operation to 10 lb/hr and 4 tons/yr.

Condition 17 limits metal throughput to the arc spray operation to 4 lb/hr and 0.5 tons/yr.

Condition 25 limits visible emissions to 5% opacity.

Condition 29 requires that monthly and annual records of metal throughput to the flame and arc spray operations be kept.

Condition 32 requires that notification be provided for malfunctions of processing or control equipment that may cause excess emissions for more than one hour.

Condition 34 requires maintenance schedules, spare parts inventory, written operating procedures, and operator training records for control and process equipment affecting emissions.

The following Virginia Administrative Codes that have specific emission requirements have been determined to be applicable:

9 VAC 5-40-260, Standard for Particulate Matter - Process Weight Rate Table

In the absence of an emission limitation established under 9 VAC 5 Chapter 50, standards of 9 VAC 5 Chapter 40 apply. Since this unit has no particulate matter emission limitation established under 9 VAC 5 Chapter 50, particulate matter standards for general processes apply. Particulate matter emissions from general processes are not to exceed corresponding quantities given by:

$$E = 4.10 P^{0.67}, \text{ where } P \text{ is the process weight rate.}$$

For the flame spray operation, the maximum process weight rate is 600 lb/hr, and the corresponding particulate matter emission rate is 1.83 lb/hr. For the arc spray operation, the maximum process weight rate is 4,000 lb/hr, and the corresponding particulate matter emission rate is 6.52 lb/hr.

9 VAC 5-50-10 – 50 contain general requirements for proper operation, maintenance,

recordkeeping, notification, and compliance.

9 VAC 5-50-80 and 290, New Source Standard for Visible Emissions.  
(see Streamlining discussion)

### **Monitoring**

The monitoring and recordkeeping requirements in Condition 29 of the NSR permit have been modified to meet Part 70 requirements.

The Title V permit contains a requirement to perform weekly visible emission evaluations (VEEs) on the booth stacks. If visible emissions are present, a six-minute visible emission evaluation (VEE) must be performed according to 40 CFR 60, Appendix A, Method 9. If during the six minute period, any violations of the 5% opacity standard are noted, a one-hour VEE is required to demonstrate compliance with the standard. The one-hour VEE is not required if the source of excess visible emissions is corrected and returned to no visible emissions in a timely manner. This will satisfy the periodic monitoring requirement for the visible emission limitation included in the permit.

The spray booth is equipped with a pressure drop measuring device to indicate that filtration devices are present and operating properly.

The January 13, 1994 NSR permit analysis estimates particulate matter emissions from the Flame Spray operation using 85% control and 85% transfer of metal at:

$$(10 \text{ lb/hr})(1-0.85)(1-0.85) = 0.23 \text{ lb/hr}$$

The December 19, 1997 NSR permit analysis estimates particulate matter emissions from the Arc Spray operation using 50% transfer and 85% control at:

$$(4 \text{ lb/hr})(1-0.5)(1-0.85) = 0.3 \text{ lb/hr}$$

According to these estimates, particulate matter emissions from these operations are expected to be well below the general process weight rate emission standards given by 9 VAC 5-40-260, as long as the process and control equipment is maintained and the limitations on material throughput are not exceeded. In order to show compliance at all process rates, the company will be required to record the process weight rates, calculate the emission standard from the formula above, and verify emissions from material consumption, transfer efficiencies, and control efficiencies.

### **Recordkeeping**

The Title V permit includes requirements for maintaining records of all monitoring and testing required by the permit. These records include hours of operation, hourly, monthly, and annual material balance for metal throughput, visible emission evaluation results, and emissions for the



booth.

### Testing

The Title V permit does not require source tests. A table of test methods has been included in the permit if testing is performed. The Department and EPA have authority to require testing not included in this permit if necessary to determine compliance with an emission limit or standard.

### Reporting

The company is required to provide notification for malfunctions of processing or control equipment that may cause excess emissions for more than one hour. An annual compliance certification is required of all Title V permit holders.

### Streamlined Requirements

9 VAC 5-50-80 and 9 VAC 5-50-290 contain opacity requirements of 20% for new sources. Since Condition 25 of the NSR permit requires 5% opacity, it is more stringent and streamlining is appropriate. The Title V permit will require a 5% opacity limit for the booth. 9 VAC 5-50-80 and 9 VAC 5-50-290 will be cited in the Title V permit as indication that the associated standard was streamlined.

**EMISSION UNIT APPLICABLE REQUIREMENTS - #6, 7, 9, 11, 12, 13, 14, 21, 32, and 80 – Shelter Coating; #22, 23, 63, 65, 69a&b – Composite Coating; #96-98 - Resin Transfer Molding; #108 & 109 – Armor Plate;**

### Limitations

The following are requirements from Conditions 3, 4, 8, 9, 19, 20, 25, 29, 32, and 34 of the minor NSR permit issued on March 15, 2005 as amended April 18, 2005 and May 4, 2005:

Condition 3 requires that particulate matter emissions from shelter coating be controlled by paper filters or equivalent.

Condition 4 requires that particulate matter emissions from composite coating be controlled by 2-stage filters that comply with MACT GG.

Condition 8 requires that VOC emissions be minimized during cleaning by work practices.

Condition 9 requires that booths be equipped with differential pressure monitoring devices.

Condition 19 limits emissions from the resin transfer molding, armor plate, and shelter and composites coating operations to:

VOC	916.26 lb/hr	239.51 tons/yr
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(This limit includes emissions from booths and several non-point sources including paint mixing operations, paint drying operations, surface preparation, resin molding/curing, and a solvent-degreasing unit.)

Condition 20 limits PM/PM10 emissions from shelter and composites coating operations and resin transfer molding operations to:

PM/PM10	4.17 lb/hr	3.11 tons/yr
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Condition 25 limits visible emissions to 5% opacity.

Condition 29 requires records to be kept of material consumption, MSDS, hours of operation, hourly, monthly and annual material balance of throughput and emissions for each pollutant.

Condition 32 requires that notification be provided for malfunctions of processing or control equipment that may cause excess emissions for more than one hour.

Condition 34 requires maintenance schedules, spare parts inventory, written operating procedures, and operator training records for control and process equipment affecting emissions.

The following Virginia Administrative Codes that have specific emission requirements have been determined to be applicable:

9 VAC 5-50-10 – 50 contain general requirements for proper operation, maintenance, recordkeeping, notification, and compliance.

9 VAC 5-50-80 and 290, New Source Standard for Visible Emissions  
(see streamlining discussion)

40 CFR 63.1-15 – Subpart A, General Provisions contains general requirements applicable to MACT sources. These requirements apply to the composites coating operations.

40 CFR 63.741-759, Subpart GG – National Emission Standards for Aerospace Manufacturing and Rework Facilities applies to the composites coating operations (primer and topcoat) and resin transfer molding, but not to shelter coating operations or armor plate production. The requirements of this subpart include work practice standards for topcoats, primers, cleaners, and control devices.

## Monitoring

The monitoring requirements in Condition 29 of the NSR permit have been modified to meet Part 70 requirements.

The Title V permit contains a requirement to perform weekly visible emission evaluations (VEEs) on the spray booth stacks. If visible emissions are present, a six-minute visible emission

evaluation (VEE) must be performed according to 40 CFR 60, Appendix A, Method 9. If during the six minute period, any violations of the 5% opacity standard are noted, a one-hour VEE is required to demonstrate compliance with the standard. The one-hour VEE is not required if the source of excess visible emissions is corrected and returned to no visible emissions in a timely manner. This will satisfy the periodic monitoring requirement for the visible emission limitation included in the permit.

No opacity checks are necessary for the sealer booths associated with the armor plate operation. These booths do not spray material. Coating is applied by roller, producing no particulate matter emissions.

All spray booths are required to be equipped with devices to measure the differential pressure drop across the filters.

The VOC emissions from aerospace composites coating operations, metal parts coating operations, resin transfer molding, and armor plate production are limited by total VOC and PM/PM10 emission limits in the NSR permit, and are tracked by material balance calculations using VOC and solids content of the materials. With respect to aerospace coating and resin molding transfer operations, MACT Subpart GG (40 CFR 63.750(e)(1)) allows the use of "manufacturer's supplied data or Method 24" to determine VOC content. The shelter coating and armor plate operations are not yet subject to a MACT (the compliance date is 01/02/07 for Subpart MMMM), and therefore have no prescribed requirements for VOC determinations. Due to the large number of potential coatings and materials used at this facility (400+), the Title V permit will contain provisions which require the company or coating supplier to determine VOC content by EPA approved methods if the actual annual VOC emissions exceed 75% of the emission limit. Should this occur, the company must test each coating material used on a quarterly basis to determine VOC content. If emissions are less than 75% of the emission limit for three consecutive months, testing may be discontinued.

MACT Subpart GG requires that aerospace coating booths and tackifier spray booths be continuously monitored for pressure drop across the particulate matter control system. The pressure drop must be recorded once per shift. Also, monthly visual leak inspections are required for the enclosed spray gun cleaners.

### **Recordkeeping**

The Title V permit includes requirements for maintaining records of all monitoring and testing required by the permit. These records include annual material consumption; MSDS information on materials used; hourly, monthly, and annual material balance of VOC and PM/PM10 throughput and emissions; results of visible emission evaluations; results of VOC content testing; daily hours of operation; and shipped waste materials. The permit also includes the requirement to maintain records of weekly visible emissions evaluations. Emission calculations are based on material usage, VOC and solids contents, and appropriate particulate matter control and transfer.

MACT Subpart GG contains requirements to record information about primers and topcoats used in applying aerospace coatings, such as; name, VOC/HAP contents, monthly usage,

certifications or test results showing VOC/HAP contents, and pressure drop across the control device once per shift. Records of leaks and repairs are required for spray gun cleaning. Records of flush cleaning solvents include the name of the solvent, volumes used, and supporting calculations. Records of handwipe cleaning operations include names of cleaners, monthly or annual volumes used, vapor pressures, and test results or calculations used to show compliance with the applicable standards.

## **Testing**

The Title V permit does not require source tests. A table of test methods has been included in the permit if testing is performed. The Department and EPA have authority to require testing not included in this permit if necessary to determine compliance with an emission limit or standard.

MACT GG requires that specific testing procedures or manufacturers data be used to determine VOC and HAP content in aerospace primers and topcoats. Dry particulate filter certification will be made using EPA Method 319. Also, the composition of handwipe cleaning solutions must be determined by approved methods.

If actual VOC emissions exceed 75% of the VOC emission limit, the VOC content of coating materials used must be determined on a quarterly basis using EPA approved methods (e.g. Method 24).

## **Reporting**

The Aerospace Coating MACT requires reporting various data for topcoats, primers, and cleaners on a semiannual basis. They include identification of instances where HAP and VOC limits are exceeded, instances where control device exceedances occur, instances where pressure drop is outside limits, compliance certifications, leaks from enclosed spray gun cleaners not repaired within 15 days, and noncompliant spray gun cleaning methods are used. Annual reports of filter pressure drop limit exceedances are required for primer/topcoat booths.

The MACT also requires that an annual report be submitted. In accordance with 40 CFR 63.10 (a)(5), this date can correspond to due dates established for other reports that cover the same time period. The Title V permit requires, in Condition XII.D, that an annual compliance certification be submitted by March 1 of each year. Therefore, in accordance with 40 CFR 63.10 (a)(5), the due date for the annual report required in the MACT has been changed to March 1 of each year.

The company is required to provide notification for malfunctions of processing or control equipment that may cause excess emissions for more than one hour. An annual compliance certification is required of all Title V permit holders.

## **Streamlined Requirements**

9 VAC 5-50-80 and 9 VAC 5-50-290 contain opacity requirements of 20% for new sources. Since Condition 25 of the NSR permit requires 5% opacity, it is more stringent and streamlining is appropriate. The Title V permit will require 5% opacity limits for the booths. 9 VAC 5-50-80 and

9 VAC 5-50-290 will be cited in the Title V permit as indication that the associated standard was streamlined.

## **GENERAL CONDITIONS**

The permit contains general conditions required by 40 CFR Part 70 and 9 VAC 5-80-110 that apply to all federal operating permit sources. These include requirements for submitting semi-annual monitoring reports and an annual compliance certification report. The permit also requires notification of deviations from permit requirements or any excess emissions.

Included in this section are requirements of Conditions 10 and 30-37 of the minor NSR permit issued on March 15, 2005 as amended April 18, 2005 and May 4, 2005. These conditions explain state requirements and authority to inspect the facility and suspend the permit should conditions warrant. They require the facility to be constructed in order to allow for emissions testing, should it be necessary. The conditions also identify the company's responsibility to provide emissions data to the Department, to reduce activity to avoid violating ambient standards, and to keep a copy of the Title V permit on-site.

### **Comments on General Conditions**

#### **B. Permit Expiration**

This condition refers to the Board taking action on a permit application. The Board is the State Air Pollution Control Board. The authority to take action on permit application(s) has been delegated to the Regions as allowed by §§2.1-20.01:2 and §10.1-1185 of the *Code of Virginia*, and the "Department of Environmental Quality Agency Policy Statement NO. 3-2001".

This general condition cites the sections that follow:

9 VAC 5-80-80. Application

9 VAC 5-80-140. Permit Shield

9 VAC 5-80-150. Action on Permit Applications

#### **F. Failure/Malfunction Reporting**

Section 9 VAC 5-20-180 requires malfunction and excess emission reporting within four hours of discovery. Section 9 VAC 5-80-250 of the Title V regulations also requires malfunction reporting; however, reporting is required within two days. Section 9 VAC 5-20-180 is from the general regulations. All affected facilities are subject to section 9 VAC 5-20-180 including Title V facilities. Section 9 VAC 5-80-250 is from the Title V regulations. Title V facilities are subject to both sections. A facility may make a single report that meets the requirements of 9 VAC 5-20-180 and 9 VAC 5-80-250. The report must be made within four daytime business hours of discovery of the malfunction.

#### **L. Permit Modification**

This general condition cites the sections that follow:

9 VAC 5-80-50. Applicability, Federal Operating Permit For Stationary Sources  
9 VAC 5-80-190. Changes to Permits.  
9 VAC 5-80-260. Enforcement.  
9 VAC 5-80-1100. Applicability, Permits For New and Modified Stationary Sources  
9 VAC 5-80-1790. Applicability, Permits For Major Stationary Sources and Modifications Located in Prevention of Significant Deterioration Areas  
9 VAC 5-80-2000. Applicability, Permits for Major Stationary Sources and Major Modifications Locating in Nonattainment Areas

#### **U. Malfunction as an Affirmative Defense**

The regulations contain two reporting requirements for malfunctions that coincide. The reporting requirements are listed in sections 9 VAC 5-80-250 and 9 VAC 5-20-180. The malfunction requirements are listed in General Condition Q and General Condition F. For further explanation see the comments on general condition F.

#### **Y. Asbestos Requirements**

The Virginia Department of Labor and Industry under Section 40.1-51.20 of the Code of Virginia also holds authority to enforce 40 CFR 61 Subpart M, National Emission Standards for Asbestos.

This general condition contains a citation from the Code of Federal Regulations that follow:

40 CFR 61.145, NESHAP Subpart M. National Emissions Standards for Asbestos as it applies to demolition and renovation.

40 CFR 61.148, NESHAP Subpart M. National Emissions Standards for Asbestos as it applies to insulating materials.

40 CFR 61.150, NESHAP Subpart M. National Emissions Standards for Asbestos as it applies to waste disposal.

#### **STATE ONLY APPLICABLE REQUIREMENTS**

9 VAC 5-40-130 – 160 pertaining to odor are state-only enforceable requirements. As such, they are not included in the Title V permit.

#### **FUTURE APPLICABLE REQUIREMENTS**

MACT regulations involving industrial boilers (40 CFR 63 Subpart DDDDD) and miscellaneous metal parts coating operations (40 CFR 63 Subpart MMMM) have been promulgated. The company has determined that these requirements are applicable to operations at their facility. Compliance dates are September 13, 2007 and January 2, 2007, respectively.

#### **INAPPLICABLE REQUIREMENTS**

40 CFR 60 (NSPS), Subpart Dc – Standards of Performance for Small Industrial-Commercial-

Institutional Steam Generating Units – applies to boilers with input heat capacity greater than 10 MMBtu/hr and less than 100 MMBtu/hr constructed or modified after June 9, 1989. Both boilers at the facility were constructed prior to this date.

40 CFR 60 (NSPS), Subpart Kb – Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced after July 23, 1984 – applies to storage tanks much larger than those at this facility. It is therefore inapplicable.

40 CFR 60 (NSPS), Subpart VVV – Standards of Performance for Polymeric Coating of Supporting Substrates Facilities – applies to facilities constructed after April 30, 1987 that are engaged in applying coatings to fabrics, paper, or other flexible materials. General Dynamics-Armament and Technical Products has operated similar processes for the impregnation of resins on various fabrics to be used in the manufacture of composite materials (reference #40, 41, 49, & 81). However, the company installed these operations in the early 1970's, many years before the applicable date of Subpart VVV without subsequent modification. Therefore, the regulation does not apply.

40 CFR 63, Subpart T – National Emission Standards for Halogenated Solvent Cleaning – applies to batch vapor degreasing units which use one of several chlorinated solvents after December 2, 1997. The company operates a batch vapor degreasing unit in the shelter fabrication and coating operation (identified in the permit application under reference #80), and filed an initial notification report with EPA Region III on August 22, 1995 identifying compliance options. The company switched solvents prior to the compliance date and notified EPA. The solvent that the company uses contains no chlorine, and the MACT therefore does not apply. Should the company change solvents in the future, this regulation may apply.

40 CFR 63, Subpart JJJJ - National Emission Standards for Paper and Other Web Coating – applies to coating paper, film, or other flexible webs. 40 CFR 63.3300 references flexible packaging and pressure sensitive tape and abrasive materials. Operations at the facility do not resemble those described. Composite materials are not flexible and fabrics become a structural component of the solid products.

40 CFR 63, Subpart MMMM - National Emission Standards for Miscellaneous Metal Parts and Products Coating – applies to metal finishing operations. 40 CFR 63.3881(c)(10)&(11) provide exclusions for aerospace coating of vehicles and components. Therefore, it does not apply to the composite coating operations. This subpart will, however, apply to other coating operations at the facility after the compliance date (01/02/2007).

40 CFR 63, Subpart OOOO - National Emission Standards for Printing, Coating, and Dyeing of Fabric and Other Textiles – applies to coating or finishing fabrics. The company uses fabrics in their composite production operations. However, these activities reportedly do not involve HAP-containing materials. 40 CFR 63.4281(c) excludes those activities that do not involve the use of HAP-containing materials. The company currently qualifies for this exclusion.

40 CFR 63, Subpart PPPP – National Emission Standards for Surface Coating of Plastic Parts and Products – applies to coating of parts/products formed from resins. 40 CFR 63.4481(c)(11)

excludes surface coating of plastic aerospace components that comply with 40 CFR 63, Subpart GG (aerospace manufacture and rework facilities).

40 CFR 63, Subpart WWWW - National Emission Standards for Reinforced Plastics Composites Production – applies to production of reinforced plastic composites using styrene-based materials. 40 CFR 63.5785(d) excludes operations that use less than 1.2 tons per year of resins or gel coats containing styrene. The company currently qualifies for this exclusion.

9 VAC 5 Chapter 40, Article 24 – Emission Standards for Solvent Metal Cleaning Operations Using Non-halogenated Solvents – applies to solvent metal cleaning operations located in VOC control areas of the state. This facility is not located in such an area.

9 VAC 5 Chapter 40, Article 34 - Emission Standards for Miscellaneous Metal Parts and Products Coating Application Systems – applies to metal coating operations located in VOC control areas of the state. This facility is not located in such an area.

9 VAC 5 Chapter 40, Article 25 - Emission Standards for Volatile Organic Compound Storage and Transfer Operations – applies to VOC storage and transfer operations located in VOC control areas of the state. This facility is not located in such an area.

9 VAC 5 Chapter 60, Article 5 – Emission Standards for Toxic Pollutants from New and Modified Sources – a state-only enforceable rule that applies to sources not specifically excluded. One such exclusion is sources included in MACT categories. Since this source is included in the aerospace manufacturing category, among others, and is subject to MACT standards for HAPs, this regulation does not apply.

## INSIGNIFICANT EMISSION UNITS

The insignificant emission units are presumed to be in compliance with all requirements of the Clean Air Act as may apply. Based on this presumption, no monitoring, recordkeeping or reporting shall be required for these emission units in accordance with 9 VAC 5-80-110.

Insignificant emission units include the following:

Emission Unit No.	Emission Unit Description	Citation	Pollutant(s) Emitted (5-80-720 B)	Rated Capacity (5-80-720 C)
8, 10, 15, 16, 17, 24, 25, 26, 28, 29, 30, 31, 34, 35, 36, 37, 38, 39, 42, 43, 44, 45, 47, 71, 72, 73, 74, 75, 106	Gas-fired Drying ovens and heaters	9 VAC 5-80-720 C 2.a.		< 10 MMBtu/hr



50, 51, 52, 53, 54, 55, 56, 94, 99-105	Electric ovens and heaters	9 VAC 5-80-720 A.6 & 39		
59, 60, 62, 64, 68, 86	Steam ovens and dryers	9 VAC 5-80-720 A.39		
82, 83, 85	Vacuum Pumps	9 VAC 5-80-720 B	VOC	
48	Ignition Loss Burnout oven	9 VAC 5-80-720 A.28		
70	Lab spray booth	9 VAC 5-80-720 A.28		
89	Diesel Storage Tank	9 VAC 5-80-720 A.41		
90	Diesel fire- suppression engine	9 VAC 5-80-720 C 4.b		< 645 Hp
107	Various grinding, buffing, trimming	9 VAC 5-80-720 B	PM	
Shop Vacs	Shop Vacuum Cleaners	9 VAC 5-80-720 A.50		

<sup>1</sup>The citation criteria for insignificant activities are as follows:

9 VAC 5-80-720 A - Listed Insignificant Activity, Not Included in Permit Application

9 VAC 5-80-720 B - Insignificant due to emission levels

9 VAC 5-80-720 C - Insignificant due to size or production rate

## CONFIDENTIAL INFORMATION

The permittee did not submit a request for confidentiality. All portions of the Title V application are suitable for public review.

## PUBLIC PARTICIPATION

The draft/proposed permit was placed on public notice in the *Smyth County News & Messenger* from July 13, 2005 to August 12, 2005. The permit documents were submitted to EPA for concurrent review as both draft and proposed materials. No comments were received from members of the public, affected states, or EPA.